P.A.R.T.S

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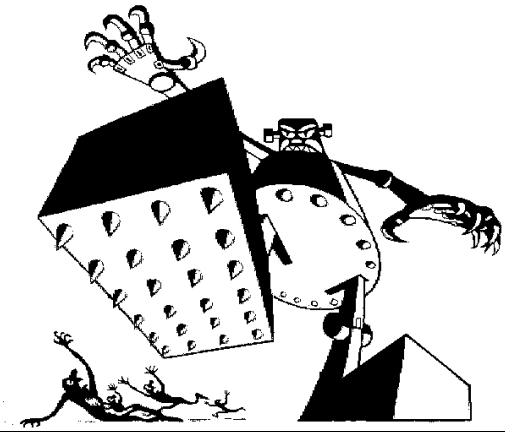
Issue # 15 Portland Area Robotics



Ready Set Go!

It was my son Cameron's birthday a few days ago, he turned two. While I was out shopping for a gift for my little one, I found a gift that would be perfect for the both of us. The Ready Set Go Interactive Programable Vehicle. I bought one for Cameron, so that he could play with it. And I bought one for myself to take apart and play with.

The Ready Set Go truck is a great toy for little kids because it is easy to program. It has a large push button key pad. It talks, has sound effects and blinky lights, and turns itself off when it is not being used.

The Ready Set Go truck is a great for robot builders too, because it is easily interfaced to a computer. (it already is.) It is solidly built, has big tires, and has good indoor speed and differential steering, and is battery powered.

The toy is similar to the BIG TRAK from yester-year. I found my two trucks at the local discount toy store for only $18.68 each, on sale price. I have seen it normally for about $40.

A BOTBoard or a Basic Stamp would be perfect to get this would be robot off the ground. Add a bumper, some IR object detectors maybe even a robot arm to create a wonderful robot pet.

My son Cameron loves his Ready Set Go truck, and I can't wait to take mine apart... I wonder what I will find when I go shopping for my wife's birthday.

The BOTBoard 2

I finally finished work on my new controller board, the BOTBoard 2. I tried to take the same design philosophy from the original BOTBoard and apply it the new board. I wanted a controller board that was very flexible, easy to build and use, and had all the features I could stuff onto one board.

The BOTBoard 2 took much longer to design and build than I originally planned. I spent several weeks just designing a pin layout for I/O. I took my time because I wanted a board that would make building robots easy and fun. I hope that it is as popular as the BOTBoard is.

Next issue of PARTS I will focus on the features of the BOTBoard 2.

BUS SPEED I/O the Easy Way.

While I was designing the BOTBoard 2, I wanted to design an easy way to add a fast input and output expansion port to the board. The 68HC11 has lots of I/O when you use it in single chip mode, but in expanded mode 16 pins are used to multiplex the address bus and data bus. To recover these lost I/O lines I added an Expansion Port that allows easy addition of **64 I/O pins**. 32 output pins and 32 input pins. This is accomplished with a simple latch (74HC574) or buffer (74HC244). These two parts cost well under $2.

I used the 74HC138 to create the chip select lines for the I/O latch and buffer. The '138 decodes eight lines into four read signals and four write signals. The signals activate the buffer or latch to read and write data directly to the 68HC11 data bus for ultra fast I/O.

One read pin and one write pin share an address space. For example a read in address range $7000-$7fff will activate pin 7, and a write in address range $7000-$7fff will activate pin 9.

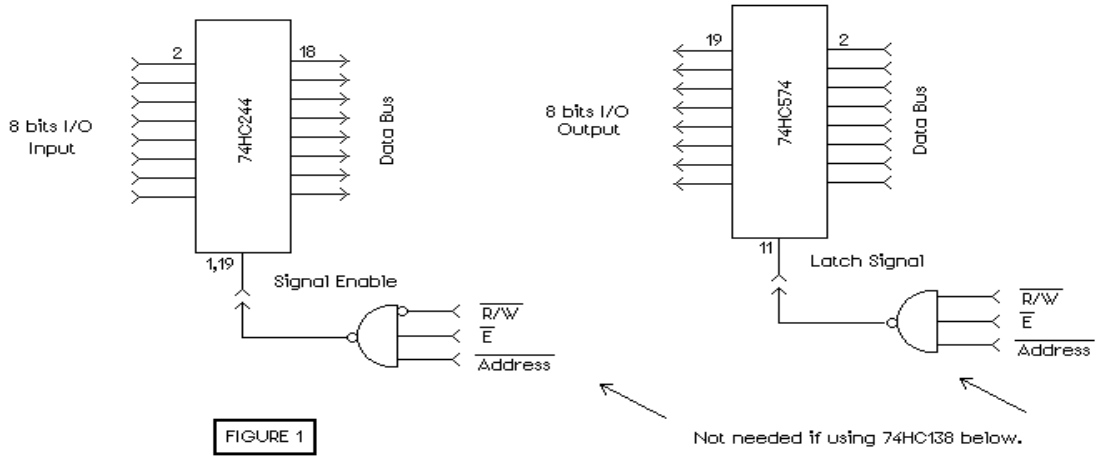


FIGURE 1

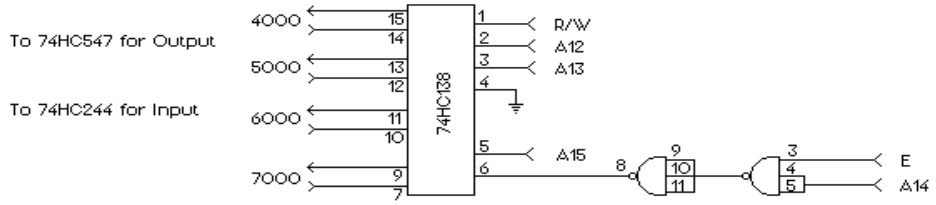


FIGURE 2

Figure 1 shows how an output latch (74HC574) or and input buffer (74HC244) could be used to interface with the data bus. Figure 2 shows how the 74HC138 decodes the microcontroller bus signals to create chip selects for input buffers and output latches.